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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/602,458

06/23/2003

Eric Norman Johnson

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08/02/2006

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EXAMINER

PHAM, THOMAS K

ART UNIT

PAPER NUMBER

2121

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,458

Applicant(s)

JOHNSON ET AL.

Examiner

Thomas K. Pham

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2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. This is in response to the amendment filed 06/05/2006.
2. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Quotations of U.S. Code Title 35

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim Rejections - 35 USC § 102

7. Claims 1-8, 13 and 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,768,124 ("Stothers").

Regarding claim 1

Stothers teaches the invention including a method comprising the step of: generating a hedge signal to avoid adaptation to at least one characteristic of an adaptive control system and/or a plant controlled by the adaptive control system IS TAUGHT as a secondary vibration within a vehicle cabin to avoid adaptation of the vibrations generated by the harmonics of primary source of vibrations including engine vibration (see abstract, FIG. 1, C 3 L 50-64, C 4 L 1-11, FIG. 6 and C 10 L 8-36).

Regarding claim 13

Stothers teaches the invention including in an adaptive control system for controlling a plant, a hedge unit coupled to receive at least one control signal and a plant state signal, the hedge unit generating a hedge signal based on the control signal, the plant state signal, and a hedge model including a first model having a characteristic to which the adaptive control system is not to adapt, and a second model not having the characteristic to which the adaptive control system is not to adapt, the hedge signal used in the adaptive control system to remove an effect of the characteristic from a signal supplied to an adaptation law unit of the adaptive control system so that the adaptive control system does not adapt to the characteristic in controlling the plant IS TAUGHT as an adaptive control system for controlling a vehicle (plant), a processor unit coupled to receive at least one control signal, error signal and noise signal (i.e. signals $x(n)$, $e(n)$ and $s(n)$). The processor unit generates a secondary vibration within a vehicle cabin to avoid

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adaptation of the vibrations generated by the harmonics of primary source of vibrations including engine vibration by applying the impulse response model C (see FIG. 2 and 3) that has a characteristic to which the control system is to adapt, and the reference signal $x(n)$ model that has a characteristic to which the control system is not to adapt. Within the vehicle cabin, the secondary vibration signal is canceling out the harmonics included in the primary frequency of vibrations from the engine (see abstract, FIG. 1, C 3 L 50-64, C 4 L 1-11, C 5 L 58 to C 6 L 12 , FIG. 6 and C 10 L 8-36).

Regarding claim 2

Stothers teaches modifying a commanded state signal with the hedge signal (see C 4 L 54-62); generating a reference model state signal based on the commanded state signal modified with the hedge signal (see C 5 L 40-48).

Regarding claim 3

Stothers teaches generating a tracking error signal based on the reference model state signal and a plant state signal (see C 3 L 63-67 and C 4 L 23-31); and generating an adaptive control signal based on the tracking error signal to adapt control response of the adaptive control system (see C 4 L 32-38).

Regarding claim 4

Stothers teaches the hedge signal is generated based on a difference between a first signal derived from a plant model not having the characteristic (see C 3 L 50-64), and a second signal derived from a plant model having the characteristic (see C 5 L 58 to C 6 L 12).

Regarding claim 5

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Stothers teaches the first signal is generated based on an input control signal and a plant state signal in addition to the plant model not having the characteristic (see FIG. 7, $x(n)$ signal), and the second signal is generated further based on a command control signal and a plant state signal in addition to the plant model having the characteristic (see FIG. 2, FIG. 3 and C 5 L 58 to C 6 L 12).

Regarding claim 6

Stothers teaches the input control signal is generated based on at least one of the commanded state signal, reference model state signal, a plant state signal, and an adaptive control signal (see C 4 L 1-12).

Regarding claim 7

Stothers teaches the command control signal is generated based on the input control signal modified by a control allocation and a control characteristic imposed by the controller (see C 4 L 12-38).

Regarding claim 8

Stothers teaches the second signal is generated based on an actuator state signal (see C 10 L25-42).

Regarding claims 16-20

Stothers teaches an adaptive control system wherein the characteristic pertains to a control limit of the actuator used to control the plant wherein the control limit pertains to actuator end points, actuator dynamics, a rate limit of the actuator or quantization effects associated with the actuator (see C 3 L 14-19 and C 6 L 7-12).

Claim Rejections - 35 USC § 103

8. Claims 9-12, 14, 15 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,768,124 ("Stothers") in view of U.S. Patent No 5,367,612 ("Bozich").

Regarding claims 9-12, 14, 15 and 21-23

Stothers does not specifically disclose generating a display based on the input control signal, an operator generating the command control signal based on the display; the plant is an aircraft and/or spacecraft, an automobile or an unmanned vehicle; the characteristic is a time delay between generation of the commanded state signal by the controller at a time, and receipt by the controller of the plant state signal resulting from the commanded state signal generated at the time; and wherein the characteristic is a time delay between generation of a state by the plant and sensing of the state of the plant by the sensor to generate the plant state signal

However Bozich teaches an adaptive process control system selectively control vibrations including generating a visual display which would provide a user of a device (e.g. deaf person) useful information for generating a control command to the device (see C 5 L 5-20).

Bozich teaches the plant is an aircraft and/or spacecraft, an automobile or an unmanned vehicle (see C. 4 L 36-45).

Bozich teaches the characteristic is a time delay between generation of the commanded state signal by the controller at a time, and receipt by the controller of the plant state signal resulting from the commanded state signal generated at the time (see C 12 L 31-49); and wherein the characteristic is a time delay between generation of a state by the plant and sensing of the state of the plant by the sensor to generate the plant state signal (see C 16 L 54-66).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the visual display of Bozich with the adaptive control system of Stothers because it would provide for the purpose of providing an adaptive control system having the benefit and advantages to different type of users including user with hearing impair to control a device with spoken speech, where the device is in a wide range of including aerospace, automobile, and offices.

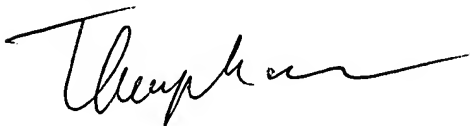
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (571) 272-3689, Monday - Thursday from 6:30 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (571) 272-3687.

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**. Responses may also be faxed to the **official fax number (571) 273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas Pham
Patent Examiner

A handwritten signature in black ink, appearing to read 'Thupha', with a long horizontal flourish extending to the right.

July 28, 2006